

SUCCESS STORIES USING STIMBLUE+

WHEAT CULTIVATION



kelp blue

**STIM
BLUE**

ABOUT THE TRIAL



LOCATION OF TRIALS



UKRAINE



SEASON

**OCTOBER 2024 –
JULY 2025**

TRIALS



MACROCYSTIS VS ECKLONIA



UNDER FERTILISER REDUCTION

+\$40 – \$560

increased economic returns per hectare

+27%

increased yield per hectare
(StimBlue+ 2 L/ha vs. competitor 2 L/ha)

-30%

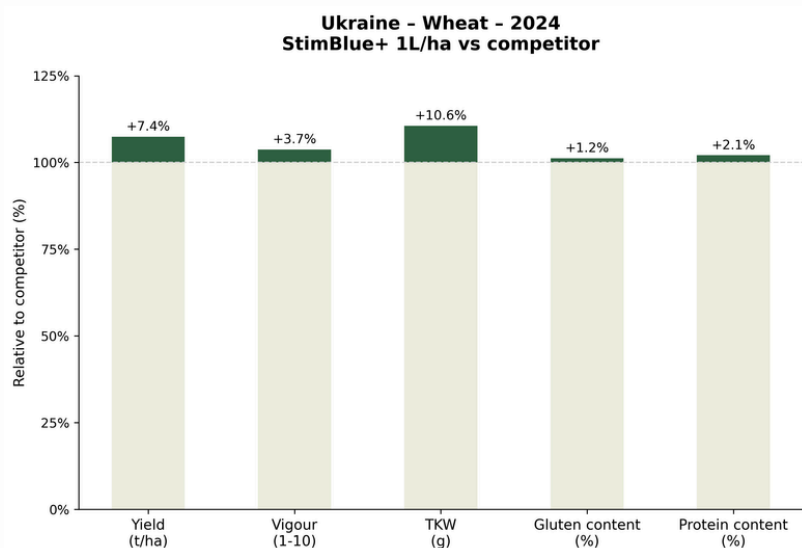
reduction in nutrient availability supported by StimBlue+ while maintaining yield

ABOUT THE TRIAL

Cereal crops are vital to global agriculture, but they rely heavily on fertilisation. That's why we collaborated with a large-scale farmer in Ukraine, the 'breadbasket of Europe', and the research group Rhizome Network for three trials to assess the effectiveness of StimBlue+ on wheat under two different scenarios: 1) standard practices and 2) nutritional stressor applied under a reduced fertiliser regime.

One trial (the standard trial) focused on understanding the added value of StimBlue+ on top of standard agricultural practices (control) and compared to a leading biostimulant competitor derived from *Ecklonia maxima*. This trial was carried out under standard agricultural conditions reflective of common regional practices. The other two trials examined different levels of fertilisation used alongside StimBlue+. The outcomes of all three trials were assessed using both quantitative and qualitative parameters relevant to wheat production.

STIMBLUE+ 1L/HA VS. COMPETITOR 2L/HA



Note: Competitor was assessed at their recommended dosage in Ukraine of 2 L/ha.



Keep reading to learn how, even when nutrient availability is reduced by 30%, StimBlue+ can help plants maintain the same yield as when nutrients are fully available.

WHEAT IN UKRAINE

Ukraine plays a major role in feeding the world. Before 2022, half of the world's sunflower oil came from Ukraine, as well as almost a fifth of the world's barley, a sixth of its maize and an eighth of its wheat.¹ In 2023, Ukraine remained the EU's third-biggest source of EU agrifood imports by value,² with cereals leading at 18% of the the country's main exports to the EU.³ In 2021, Ukraine produced 33 million metric tonnes of wheat, representing 12% of global production.¹ Most recently, in the 2024/2025 marketing year, Ukraine produced 23 million metric tonnes (3% of global production).⁴


AGRICULTURAL CONDITIONS

Ukraine is a large country with fertile soils, plenty of rain and long, hot summers. In 2020, Ukraine's agricultural land comprised 41.3 million hectares, 68.5% of Ukraine's total land area. Of this, 32.7 million hectares were arable land.⁵ Ukraine enjoys excellent conditions for agriculture, with approximately one-third of the world's most fertile land, specifically from the fertile chernozem, Ukrainian for 'black earth'.⁵ These dark soils rich in organic matter (up to 9% humus content) extend through 28.3 million hectares.⁶

CHALLENGES

Wheat production in Ukraine isn't without its challenges. Excessive cultivation, a negative nutrient balance, insufficient moisture at critical periods of the crop's development and soil fertility decline have posed challenges for farmers since the 1990s.⁷ In 2025, growers must navigate even more critical challenges, including limited access to fertiliser.⁸ Growers warn that the country could face a 30% reduction in the yield of key crops that supply both domestic and international markets if this problem is not resolved urgently.⁸



The background image shows a kelp farm. In the upper portion, several workers are visible on a boat or platform, harvesting kelp stalks. One worker in the center is wearing a blue jumpsuit and a white cap, holding up a large bundle of harvested kelp. The kelp stalks are long and thin, with large, yellowish-brown blades. The water in the foreground is dark, and the kelp blades are visible underwater, creating a sense of depth. The sky is a clear, light blue.

RESULTS EXPLAINED

YIELD

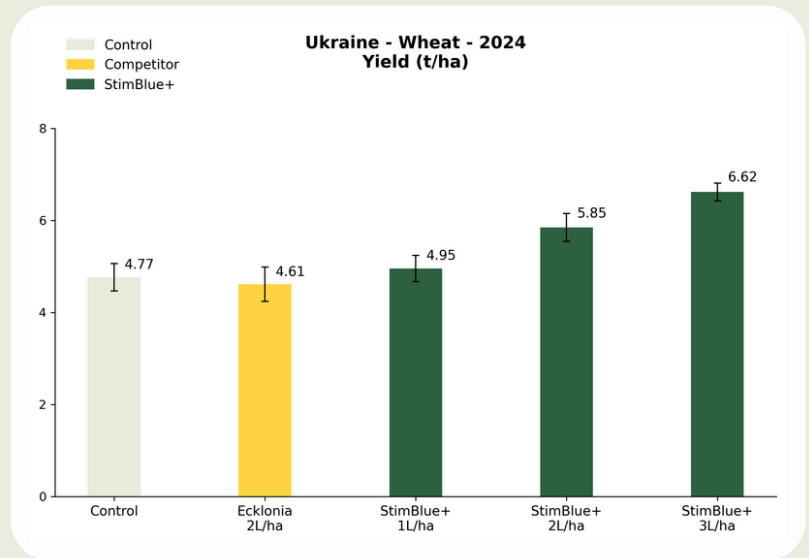


+7%

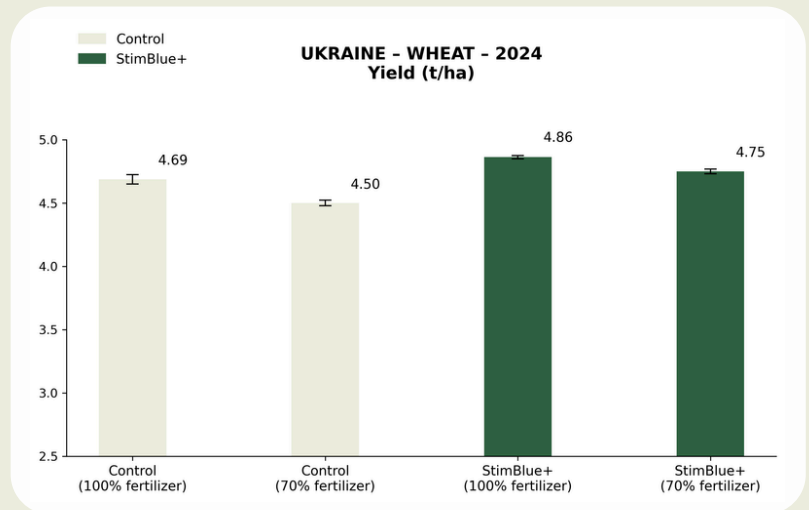
StimBlue+ 1 L/ha vs. Ecklonia 2 L/ha

+27%

StimBlue+ 2 L/ha vs. Ecklonia 2 L/ha



Even when nutrient availability was reduced by 30%, StimBlue+ helped plants maintain the same yield as when nutrients were fully available in the soil (100% fertiliser).

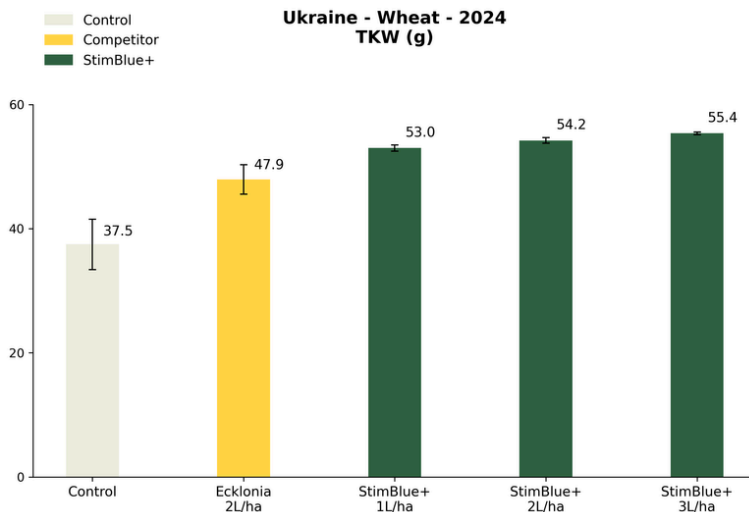


For the 2023/2024 marketing year, average wheat yields in Ukraine were reported at 4.5 tonnes per hectare. Differences in yield can be attributed to environmental factors, posing severe threats for the agricultural community in the region.⁹ Still, the increased yields delivered by StimBlue+ generated between \$40 and \$560* increased economic returns for the farmer.

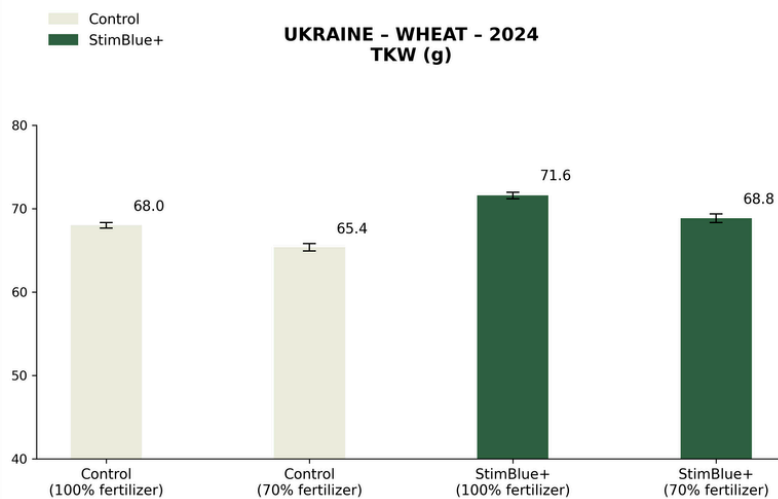
*Economic returns were calculated based on an average farm gate price of \$340 per tonne.¹⁰

HEAVIER GRAINS

+ At harvest, across all trials, plots treated with StimBlue+ consistently showed a higher thousand kernel weight (TKW)*, leading to better yield outcomes, more robust plants and avoidance of over-planting (cost-saving).



StimBlue+ at 1 L/ha showed +11% and +41% higher TKW compared to the control group and the competitor at 2 L/ha, respectively.

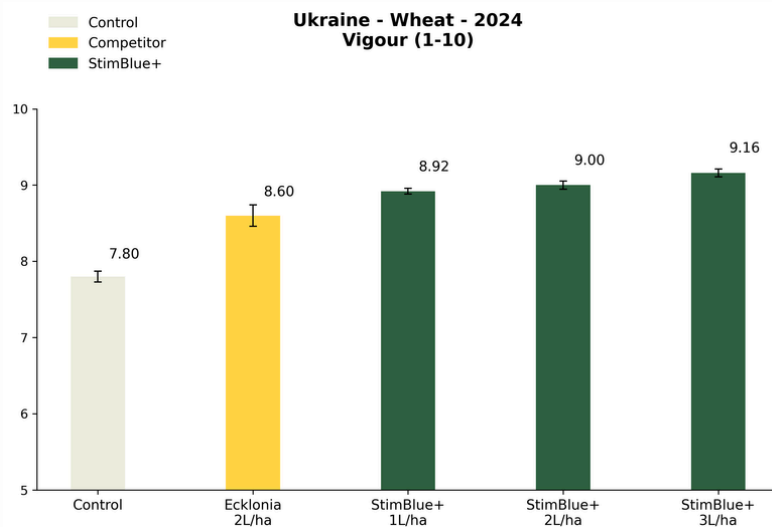


Under a 100% fertiliser regime, the application of StimBlue+ showed a +6% difference compared to the respective control group.

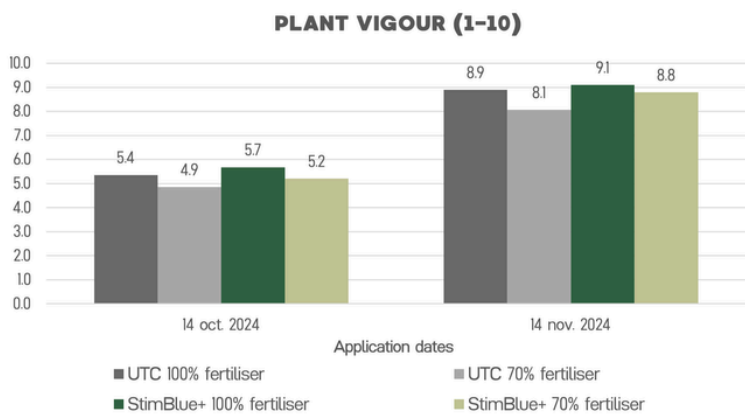
*Thousand Kernel Weight (TKW) measures the weight of 1,000 seeds, which is valuable in seed science as it helps determine seedling rates, calibrate drills, and estimate yield.

VIGOUR

Vigour, an indicator of a plant's health, growth potential and productivity, reflects how actively a plant is growing and how it is responding to its environment. A plant's vigour will affect its height, stem diameter and leaf area, which can influence its photosynthetic capacity and nutrient availability and uptake.



Plots treated with StimBlue+ at 1 L/ha showed +14% greater vigour vs. control and 4% vs. competitor at 2 L/ha.

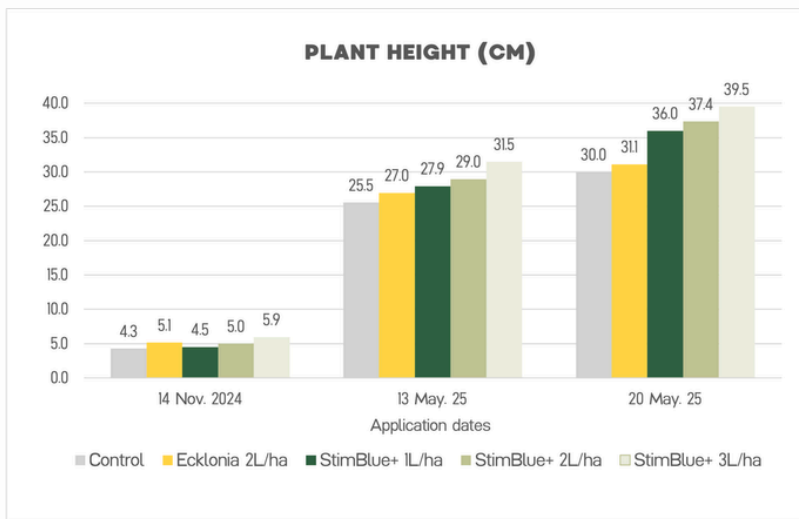


Vigour remains relatively the same between plots treated with 100% fertiliser (control) and StimBlue+ with 70% fertiliser.

*Vigour is defined as the sum of properties that determine the activity and performance of seed lots of acceptable germination in a wide range of environments. This is not a single property, but rather a combination of variables such as the rate, uniformity of germination, and growth of seeds under suboptimal growing conditions.

PLANT HEIGHT

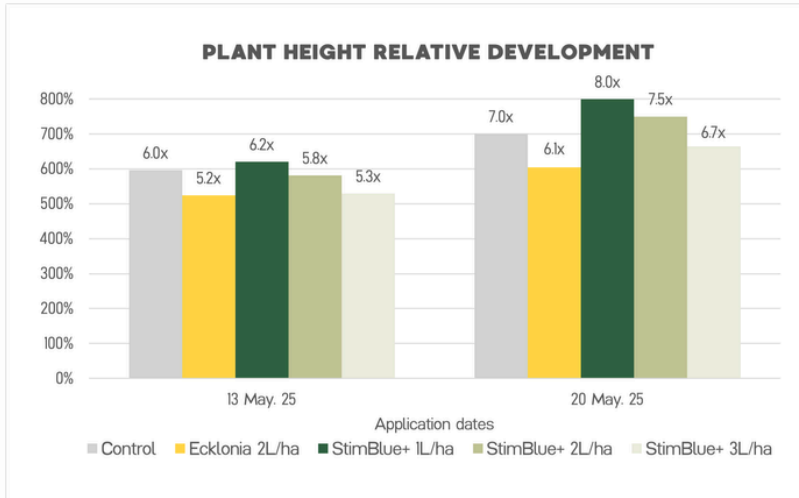
Taller plants can produce more tillers or larger heads, which can have positive effects on high grain yield. Also, taller plants are particularly advantageous in low-input (low fertiliser or irrigation) or drought-prone environments, where biomass contributes to resilience and straw is also valuable (e.g., for fodder or thatching).



Plant height was assessed 3 times over 9 months. Graph shows the plant height (cm) at each assessment date.



At the 3rd assessment, plants treated with StimBlue+ at 1 L/ha showed +20% taller plants vs. control and +16% taller plants vs. competitor at 2 L/ha.



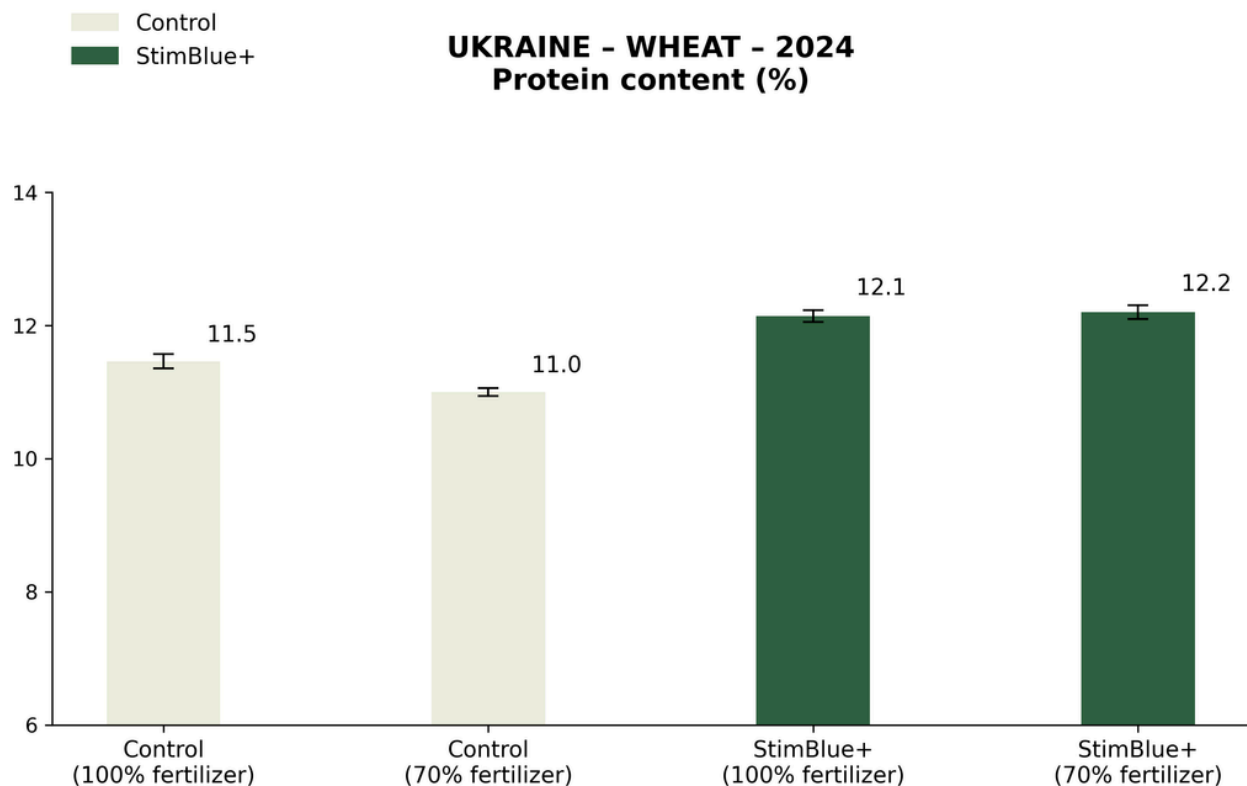
Graph shows the relative development in plant height between each assessment date.



StimBlue+ at 1 L/ha showed the highest relative development in plant height compared to other treatments.

PROTEIN CONTENT

Wheat is a source of gluten-rich proteins, carbohydrates, vitamins, minerals and essential amino acids necessary for human health. Protein content also gives wheat special properties, such as water absorption, dough elasticity, gas retention capacity and gluten networking/webbing. These factors influence a product's baking characteristics, such as loaf volume, crust colour, crumb structure and shelf life.



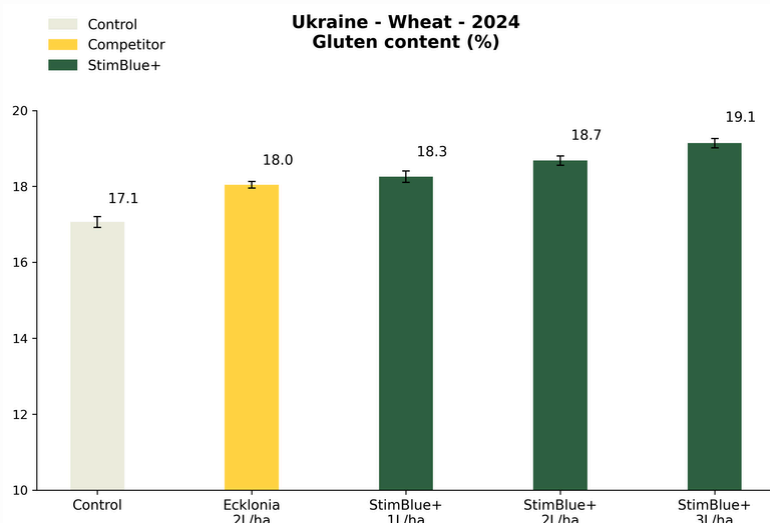
✚ The protein content of wheat is heavily dependent on the nutrients available in the soil, mainly nitrogen (N). Grain protein with an optimum N for yield in feed wheat is consistently around 11% (equivalent to 1.9% N).

✚ In standard growing conditions (100% fertiliser), the application of StimBlue+ resulted in grains with 5% higher protein content, potentially making nitrogen more available for absorption and reducing leaching and/or runoff.

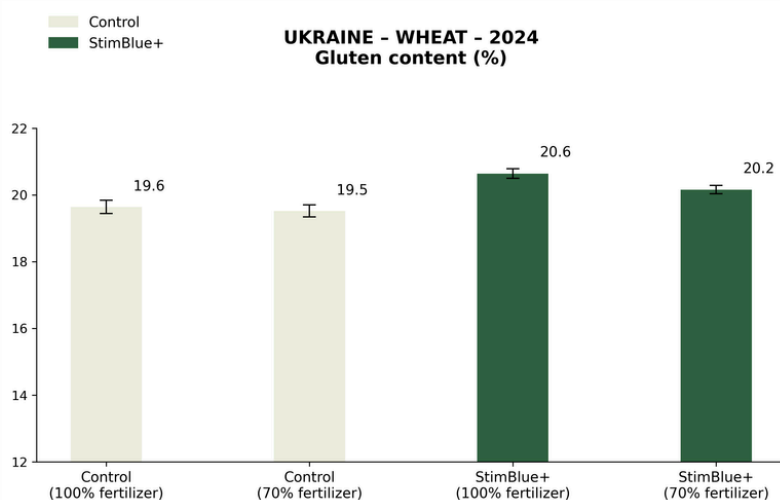
✚ In a reduced fertiliser regime (70% fertiliser), plots treated with StimBlue+ were able to withstand a lower amount of nutrients available in the soil but still able to deliver grains with high quality protein content.

GLUTEN CONTENT

Gluten proteins are essential for bread making, providing elasticity and cohesiveness in the dough. This is essential for producing bread with a good texture. The amount of wheat gluten present is a key factor for baking and the overall grain quality.



The application of StimBlue+ across all dosages positively affected gluten content, with StimBlue+ at 1 L/ha showing +7% higher results vs. control.



StimBlue+ showed similarly positive results under a reduced fertiliser regime.

APPLICATIONS

For optimal results: apply 2 applications of StimBlue+ at 1 L/ha.

- + First application: foliar spray at BBCH21 (beginning of tillering)
- + Second application: foliar spray at the BBCH55 (pre-flowering)

*This approach ensures the plants receive support at critical growth stages.
The results are based on StimBlue+ suggested application rates and calendars



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ABOUT STIMBLUE+

StimBlue+ is a biostimulant made from 100% cultivated Giant Kelp (*Macrocystis pyrifera*), has shown to be a great solution for wheat cultivation. The trial data suggests that it offers measurable, significant economic benefits, with greater yield and bigger grains.

We plant kelp forests around the globe to boost the health and biodiversity of the oceans while locking away CO2, and producing products to offer sustainable alternatives to help transition agriculture to more sustainable practices.



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